

L-R: Lean 6-Sigma Greenbelts and their supporters: Associate Government Program Analyst Dee Lam, Deputy District 12 Director of Administration Gloria Roberts, Administration Deputy Director Cris Rojas, Caltrans Deputy Attorney Gina Cardoza, Lean 6-Sigma Program Manager Julie Dunning, Assistant Information Systems Analyst Adrian Sanchez and California State Transportation Agency Secretary Brian Kelly.

Caltrans Embraces Corporate Efficiency Methods

Lean 6-Sigma integrates the powerful improvement tools of "define, measure, analyze, improve and control" or "DMAIC" into a five-phase methodology to improve production and reduce wasteful or unnecessary practices and processes.



As part of its [Strategic Management Plan](#), Caltrans has identified a Lean 6-Sigma objective as part of its Organizational Excellence Goal. World corporate leaders, including Toyota, Motorola and General Electric have used Lean 6-Sigma training to increase production by systematically fixing wasteful or unnecessary practices and processes. The vision for the Caltrans Lean 6-Sigma program is to train 15 employees as "Green Belts" by December 2015 and 10 additional Green Belts every year through 2020.

Green Belt candidates are top-performing staff who embrace the opportunity to drive transformational improvements in their work areas. Green Belts demonstrate excellent leadership skills, technical abilities, and enthusiasm for making changes for the better. The Green Belts are trained in the Lean 6-Sigma tools and receive one-on-one mentoring from a trainer who is a Master Black Belt.

What is Lean 6-Sigma?

"Lean 6-Sigma" combines two very powerful methodologies into a single, integrated approach to improving processes. "Lean," developed by the Toyota Motor Corporation in the early '60s, focuses on improving efficiencies and reducing waste. "Six Sigma" was developed by Motorola, Inc. in the mid '80s and focuses on improving quality and reducing defects by properly using data and metrics. The complementary nature

of Lean and Six Sigma has proven to be extremely effective in making rapid and transformational improvements across a wide variety of organizations and processes.

The Lean 6-Sigma approach is designed to produce substantial results using a data-driven, focused approach to an organization's problems. For example, many departments within organizations suffer from backlogs, delays, errors, and significant customer and employee dissatisfaction stemming from what appears to be too much work for too few people. These organizations often react by demanding more employees, if the budget allows it. Instead, a Lean 6-Sigma approach is to attack the sources of inefficiencies and errors so the same number of employees can process considerably more work with virtually no defects and with a much higher level of customer and employee satisfaction.



Lean 6-Sigma integrates a set of powerful improvement tools with a five-phase “DMAIC” methodology that forms the roadmap for the way an organization changes its processes and its culture:

- Define phase determines exactly what is the problem to be addressed and creates the corresponding project charter.
- Measure phase computes the baseline performance of the process, gathers data on the potential causes of the problem, and checks the measurement system that is being used to provide the process data (or creates a measurement system if one does not currently exist).
- Analyze phase uses the data to uncover the root causes of the problem.
- Improve phase determines and implements fixes for the root causes.
- Control phase institutionalizes the fixes so that the improvements are permanent.

Why Do It?

In early 2014, the Governor’s Office of Business and Economic Development (GO-Biz) and the Government Operations Agency partnered to train the first group of state agencies to pilot a Lean 6-Sigma program that would specifically address process-based issues within 11 state departments that were causing internal and external delays in services. This year, GO-Biz partnered with Global Productivity Solutions to provide a Lean 6-Sigma Green Belt program to 14 departments. Over a six-month period, participants received training on complex analytical and statistical tools that identify waste and inefficiencies in processes, and then applied these tools within Green Belt projects to make significant improvements in their areas.

This July, GO-Biz awarded the first five Caltrans employees with their Lean 6-Sigma Green Belt Certification. Each candidate also completed their own projects to improve processes within Caltrans.

Lean 6-Sigma Green Belt projects were completed in the following Caltrans areas:

- The Equal Employment Opportunity Program reduced the backlog in the discrimination complaint investigation process by getting correct information upfront. Once the plan is implemented, 95 percent of all investigations should be done within 45 business days.
- Information Technology reworked its intake process so that 95 percent of all intake requests are completed within two weeks.
- The Division of Research, Innovation and Systems Information eliminated unnecessary work and balanced the rest so that Caltrans can produce twice as many Traffic Collision Reports per day.
- Caltrans District 12 made a cross-functional process map to link the department’s land and building assets with their worth. Caltrans did not have this before, and the department now has the data to back up its Property Accounting of Operational Land and Buildings.
- Safety and Management Services identified standard procedures, timelines and guidelines for supervisors conducting workplace violence investigations. After the Caltrans safety manual is updated and these changes are implemented, 95 percent of all investigations should be completed within five working days.

Lean 6-Sigma in Caltrans’ Future

This July, Caltrans independently secured a contract with Global Productivity Solutions to launch its own Lean 6-Sigma initiative. In the first wave, eight new projects will undergo Lean 6-Sigma methodologies to identify improvements or a reduction in processing times, or both, and eight more Green Belts will be certified by the end of the year. Caltrans anticipates a second contract and wave of projects will begin in December 2015/January 2016.

By December 2016, Caltrans will complete Lean 6-Sigma reviews on 30 internal business processes and at least 15 additional projects each subsequent year through 2020. To make sure Caltrans meets its targets and establishes a sustainable Lean 6-Sigma Program, the program’s second phase will include Black Belt-level training. The Black Belts will then begin training and overseeing new Green Belts and projects in the department.

*Source: Caltrans Lean 6-Sigma Program
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